Naval Personnel
Development Command

NAVEDTRA 43152-F
March 2006

PERSONNEL QUALIFICATION STANDARD

FOR

SMALL BOAT OPERATIONS

NAME (Rate/Rank) _____

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Although the words “he,” “him,” and “his” are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this material.

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ACKNOWLEDGEMENTS

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The Model Manager for this PQS:

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INTRODUCTION

PQS PROGRAM

This PQS program is a qualification system for officers and enlisted personnel where certification of a minimum level of competency is required prior to qualifying to perform specific duties. A PQS is a compilation of the minimum knowledge and skills that an individual must demonstrate in order to qualify to stand watches or perform other specific routine duties necessary for the safety, security or proper operation of a ship, aircraft or support system. The objective of PQS is to standardize and facilitate these qualifications.

CANCELLATION

This Standard cancels and supersedes NAVEDTRA 43152-E.

APPLICABILITY

This PQS is applicable to all small boats.

TAILORING

To command tailor this package, first have it reviewed by one or more of your most qualified individuals. Delete any portions covering systems and equipment not installed on your ship, aircraft or unit. Next, add any line items, fundamentals, systems and watchstations/workstations that are unique to your command but not already covered in this package. Finally, the package should be reviewed by the cognizant department head and required changes approved by the Commanding Officer or his designated representative. Retain the approved master copy on file for use in tailoring individual packages.

QUALIFIER

The PQS Qualifier is designated in writing by the Commanding Officer to sign off individual watchstations. Qualifiers will normally be E-5 or above and, as a minimum, must have completed the PQS they are authorized to sign off. The names of designated Qualifiers should be made known to all members of the unit or department. The means of maintaining this listing is at the discretion of individual commands. For more information on the duties and responsibilities of PQS Qualifiers, see the PQS Model Manager's Guide.

INTRODUCTION (CONT'D)

CONTENTS

PQS is divided into three sections. The 100 Section (Fundamentals) contains the fundamental knowledge from technical manuals and other texts necessary to satisfactorily understand the watchstation/workstation duties. The 200 Section (Systems) is designed to acquaint you with the systems you will be required to operate at your watchstation/workstation. The 300 Section (Watchstations) lists the tasks you will be required to satisfactorily perform in order to achieve final PQS qualification for a particular watchstation/workstation. All three sections may not apply to this PQS, but where applicable, detailed explanations are provided at the front of each section.

REFERENCES

The references used during the writing of this PQS package were the latest available to the workshop, however, the most current references available should be used when qualifying with this Standard. Classified references may be used in the development of PQS. If such references are used, do not make notes in this book as answers to questions in this Standard may be classified.

TRAINEE

Your supervisor will tell you which watchstations/workstations you are to complete and in what order. Before getting started, turn to the 300 Section first and find your watchstation/workstation. This will tell you what you should do before starting your watchstation/workstation tasks. You may be required to complete another PQS, a school, or other watchstations/workstations within this package. It will also tell you which fundamentals and/or systems from this package you must complete prior to qualification at your watchstation/workstation. If you have any questions or are unable to locate references, contact your supervisor or qualifier. Good luck!

PQS FEEDBACK REPORTS

This PQS was developed using information available at the time of writing. When equipment and requirements change, the PQS needs to be revised. The only way the PQS Development Group knows of these changes is by you, the user, telling us either in a letter or via the Feedback Report contained in the back of this book. You can tell us of new systems and requirements, or of errors you find.

SUMMARY OF CHANGES

CHANGES TO FUNDAMENTALS, SYSTEMS, AND WATCHSTATIONS:

Fundamental Title	Action	Comment
Safety Precautions	Modified	Updated references
Small Boat/Rigid Hull Inflatable Boat (RHIB)	Modified	Updated references
Rules of the Road	Modified	Implemented additional fundamentals
Navigation	Modified	Updated references
Boat Etiquette	Modified	Updated references
Communications	Modified	Updated references
Diesel Engine	Modified	Updated references
Outboard Engine	Added	
Outdrive	Added	
Jetdrive	Added	
Trim Tab	Added	
Marine Species Awareness	Added	

System Title	Action	Comment
Small Boat Structure	Modified	Updated references
Marine Propulsion Gear Assembly	Modified	Updated references
Intake and Exhaust	Modified	Updated references
Fuel Oil	Modified	Updated references, updated questions to improve qualification standards
Lube Oil	Modified	Updated references
Jacket Water	Modified	Updated references
Raw Water	Modified	Updated references
Starting	Modified	Updated/added references
Electrical	Modified	Updated references
Instrument Panel and Steering	Modified	Updated/added references, updated questions to improve qualification standards
Drainage	Modified	Updated references, updated questions to improve qualification standards
Outboard Engine	Added	
Outdrive	Added	
Jetdrive	Added	
SmallCraft Diesel View	Added	
Radar	Added	
Global Positioning	Added	

SUMMARY OF CHANGES (CONT'D)

Watchstation Title	Action	Comment
Bow Hook and Stern Hook	Modified	Modified color vision test prerequisite, added additional qualification requirements
Small Boat Engineer	Modified	Added additional qualification requirements and tasks
Small Boat Coxswain/Rigid Hull Inflatable Boat (7 Meter RHIB) Coxswain	Modified	Modified title, added prerequisites and additional qualification requirements
Rigid Hull Inflatable Boat (11 Meter RHIB) Coxswain	Added	
Small Boat Officer	Modified	Added additional qualification requirements

WATCHSTATION REQUALIFICATIONS

Due to significant changes in policies, systems, or procedures, it is recommended that all personnel dealing with the subject matter of this PQS requalify in areas known to be deficient in the new fundamentals, systems, and watchstations as applicable.

ACRONYMS USED IN THIS PQS

Not all acronyms or abbreviations used in this PQS are defined here. The Subject Matter Experts from the Fleet who wrote this Standard determined the following acronyms or abbreviations may not be commonly known throughout their community and should be defined to avoid confusion. If there is a question concerning an acronym or abbreviation not spelled out on this page nor anywhere else in the Standard, use the references listed on the line item containing the acronym or abbreviation in question.

BIB	Boat Information Book
DFM	Diesel Fuel Marine
FTC	Fast Time Constant
GPS	Global Positioning System
HERO	Hazardous Electromagnetic Radiation to Ordnance
JP-5	Jet Propellant grade-5
MMPA	Marine Mammal Protection Act
MOGAS	Motor Gasoline
ORM	Operational Risk Management
RHIB	Rigid Hull Inflatable Boat
RPM	Rotations Per Minute
STC	Slow Time Constant
VRO	Variable Ratio Oilier

100 INTRODUCTION TO FUNDAMENTALS

100.1 INTRODUCTION

This PQS begins with a Fundamentals section covering the basic knowledge and principles needed to understand the equipment or duties to be studied. Normally, you would have acquired the knowledge required in the Fundamentals section during the school phase of your training. If you have not been to school or if you need a refresher, the references listed at the beginning of each fundamental will aid you in a self-study program. All references cited for study are selected according to their credibility and availability.

100.2 HOW TO COMPLETE

The fundamentals you will have to complete are listed in the watchstation (300 section) for each watchstation. You should complete all required fundamentals before starting the systems and watchstation portions of this PQS, since knowledge gained from fundamentals will aid you in understanding the systems and your watchstation tasks. When you feel you have a complete understanding of one fundamental or more, contact your Qualifier. If you are attempting initial qualification, your Qualifier will expect you to satisfactorily answer all line items in the fundamentals before signing off completion of that fundamental. If you are requalifying or have completed the appropriate schools, your Qualifier may require you to answer representative line items to determine if you have retained the necessary knowledge for your watchstation. If your command requires an oral board or written examination for final qualification, you may be asked any questions from the fundamentals required for your watchstation.

101 SAFETY PRECAUTIONS FUNDAMENTALS

References:

[a] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[b] NAVEDTRA 14343, Boatswain's Mate
[c] Boat Bill
[d] NSTM S9086-CL-STM-010/CH-077, Personnel Protection Equipment (26 MAR 98)
[e] Manufacturer's Technical Manual
[f] NSTM S9086-TX-STM-010/CH-583, Boats and Small Craft (24 MAR 98)
[g] OPNAVINST 3500.39, Operational Risk Management
[h] NAVEDTRA 14057 Damage Controlman
[i] Ship's Weight Test Log

101.1 Discuss the concept of ORM. [ref. g]

_____
(Signature and Date)

.2 Explain the following terms as they apply to ORM: [ref. g]

a. Identify hazards
b. Assess hazards
c. Make risk decisions
d. Implement controls
e. Supervise

_____
(Signature and Date)

.3 Discuss the safety precautions to be observed during boat operations in regard to weather, sea conditions, proper lee and hazards to navigation. [ref. a, vol II, ch. C4, ref. f]

_____
(Signature and Date)

.4 Discuss the safety precautions to be observed while fueling a vessel from a fuel dock, fuel barge, and ship at anchor. [ref. a, vol II, ch. C4; ref. b, ch. 5, ref. f]

_____
(Signature and Date)

.5 Discuss the procedures involved in recovering a person from the water. [ref. b, ch. 6]

_____
(Signature and Date)

101 SAFETY PRECAUTIONS FUNDAMENTALS (CONT'D)

101.6 Discuss how the following affect safety:

a. Operating vessel without proper authority and qualification [ref. a, vol II, ch. C4]
b. Failing to secure for unexpected movement [ref. a, vol II, ch. C4]
c. Operating at unsafe speed [ref. a, vol II, ch. C4]
d. Removing or making safety devices inoperable [ref. a, vol II, ch. C1]
e. Using defective tools or equipment [ref. a, vol II, ch. C1]
f. Unsafe use of tools [ref. a, vol II, ch. C1]
g. Working on moving, energized, or otherwise hazardous equipment [ref. a, vol I, ch. B7, vol II, ch. C1, C13]
h. Skylarking [ref. a, vol II, ch. C1]
i. Failing to wear personal protective equipment [ref. a, vol I, ch. B12, ref. d]
j. Posting a bow lookout [ref a, vol II, ch. C4, ref. b, ch. 6]
k. Foul weather and working load of a boat [ref. f, sec 583-5.1.5]
l. Frayed or worn lines [ref. a, vol II, ch. C5]
m. Improper line handling [ref. a, vol II, ch. C5]

_____
(Signature and Date)

.7 Discuss the proper use of portable firefighting equipment for your boat. [ref. h, ch. 5]

_____
(Signature and Date)

.8 Explain the following in terms of electrical safety: [ref. a, vol. I, ch. B7, vol II, ch. C9]

a. The hazard of electricity
b. The prevention of electrical shock
c. The use of shorting probes and procedures for discharging de-energized circuits
d. The purpose and operation of interlocks in/on electrical equipment
e. The use of danger/caution tags and tagging of open switches
f. The reason for never working alone on energized equipment
g. The purpose and operation of circuit breakers
h. The procedure and requirements of the maintenance of electrical equipment
i. The procedure for removing a victim from energized equipment
j. The proper treatment for electrical shock

_____
(Signature and Date)

101 SAFETY PRECAUTIONS FUNDAMENTALS (CONT'D)

101.9 Discuss safety precautions to be observed when hoisting and lowering a boat. [ref a, vol II, ch. C4, ref. b, ch. 5]

_____
(Signature and Date)

.10 State the safety precautions to be observed when working on or around machinery. [ref. a, vol II, ch. C13]

_____
(Signature and Date)

.11 State the requirements for wearing inherently buoyant life preserver vest type with collar and/or MK1 auto inflatable life vest. [ref. d, ch. 2]

_____
(Signature and Date)

.12 Discuss the safe working load of the davit assigned to your boat. [refs. e, i]

_____
(Signature and Date)

.13 State the weight of your boat. [ref. c]

_____
(Signature and Date)

.14 State the passenger and cargo capacity of your boat in various conditions/evolutions. [ref. c]

_____
(Signature and Date)

.15 State the use of preoperational check-off lists prior to getting underway. [ref. c]

_____
(Signature and Date)

.16 State the purpose and use of the emergency shutdown/kill switch. [ref. e]

_____
(Signature and Date)

102 SMALL BOAT/RIGID HULL INFLATABLE BOAT (RHIB) FUNDAMENTALS

References:

[a] NAVEDTRA 14343, Boatswain's Mate
[b] Boat Information Book (BIB)
[c] NSTM S9086-TX-STM-010/CH-583, Boats and Small Craft (24 MAR 98)
[d] NWP 3-50.1 (Rev. A), Naval Search and Rescue (SAR) Manual
[e] Ship's Information Book (SIB)
[f] RHIB Operations Reference Manual

102.1 Discuss the basic characteristics of small boats at your command. [ref. b]

_____
(Signature and Date)

.2 Discuss your ship's lowering and hoisting capability as well as equipment per ship's configuration. [ref. e]

_____
(Signature and Date)

.3 State the basic responsibilities for the following: [ref. a, ch. 6]

a. Boat officer
b. Coxswain
c. Bow/stern hook
d. Boat engineer
e. Senior Line Officer embarked

_____
(Signature and Date)

.4 Explain the use of the following: [ref. a]

a. Sea painter [ch. 5]
b. Bow/stern lines [ch. 5]
c. Steadying lines [ch. 5]
d. Manropes (monkey lines) [ch. 5]
e. Deadman (ch. 5)
f. Guess-warp [ch. 6]
g. Boat hook [ch. 5]
h. Grapnel [ch. 5]
i. Towing bridle/lines [ch. 4]
j. Fenders [ch. 5]
k. Life ring [ch. 5]
l. Boarding ladder [ch. 5]
m. Hand bilge pump [ch. 5]

102 SMALL BOAT/RIGID HULL INFLATABLE BOAT (RHIB) FUNDAMENTALS (CONT'D)

102.4
n. Emergency tiller [ch. 5]
o. Compass [ch. 5]
p. Compass light [ch. 5]
q. Anchor [ch. 5]
r. Lizard line [ch. 5]

_____
(Signature and Date)

.5 Discuss heavy weather hoisting/lowering/securing of small boats. [ref. a, ch. 5]

_____
(Signature and Date)

.6 State the purpose of maintaining a compass log. [ref. a, ch. 6]

_____
(Signature and Date)

.7 Discuss the effect and typical situations of the following on small boats: [ref. a, ch. 6]

a. Side force
b. Frictional wake current
c. Screw current
d. Boat and screw going ahead
e. Boat and screw backing
f. Boat going astern, screw ahead
g. Boat going ahead, screw backing

_____
(Signature and Date)

.8 Discuss the following maneuvering situations: [ref. a, ch. 6]

a. Port side to landing and getting underway
b. Starboard side to landing and getting underway

_____
(Signature and Date)

.9 Discuss the procedures for securing a boat to a boat boom. [ref. a, ch. 5]

_____
(Signature and Date)

102 SMALL BOAT/RIGID HULL INFLATABLE BOAT (RHIB) FUNDAMENTALS (CONT'D)

102.10 Discuss the function of the anchor. [ref. a, ch. 4]

_____
(Signature and Date)

.11 Define the following: [ref. a, ch. 4]

a. Stock
b. Flukes
c. Chaffing chain
d. Shank
e. Fathom

_____
(Signature and Date)

.12 State the precautions that must be observed when anchoring a RHIB. [ref. b]

_____
(Signature and Date)

.13 Define and discuss the following handling characteristics for the RHIB: [ref. f]

a. Planing speed
b. Pivot turns
c. Prevention of tripping
d. Prevention of becoming airborne

_____
(Signature and Date)

.14 Discuss where you would get a complete list of boat equipment. [ref. b]

_____
(Signature and Date)

.15 Discuss the duties of each member of the rescue boat crew. [ref. d, ch. 6]

_____
(Signature and Date)

.16 State the purpose of all required rescue boat equipment other than standard boat equipment. [ref. d, ch. 5]

_____
(Signature and Date)

102 SMALL BOAT/RIGID HULL INFLATABLE BOAT (RHIB) FUNDAMENTALS (CONT'D)

102.17 Discuss helicopter and boat coordinated rescue procedures. [ref. d, ch. 6]

_____

(Signature and Date)

.18 Discuss procedures to be followed when approaching and recovering a survivor in the water: [ref. d, ch. 6]

a. Pilot rescue
b. Conscious/unconscious victim
c. Proper employment/Safety precautions when deploying SAR swimmer

_____

(Signature and Date)

103 FIRST AID FUNDAMENTALS

Reference:

[a] NAVEDTRA 14325, Basic Military Requirements (BMR), CH. 14

103.1 Define first aid.

_____
(Signature and Date)

.2 State three objectives of first aid.

_____
(Signature and Date)

.3 State the primary tasks of first aid.

_____
(Signature and Date)

.4 State the general first aid rule.

_____
(Signature and Date)

.5 Discuss the principles involved in dressing wounds in the following areas:

a. Head
b. Facial
c. Abdominal
d. Chest
e. Eyes
f. Legs and arms

_____
(Signature and Date)

.6 State the position of pressure points on the body.

_____
(Signature and Date)

.7 Discuss the two types of fractures.

_____
(Signature and Date)

103 FIRST AID FUNDAMENTALS (CONT'D)

103.8 Explain how to immobilize a fracture.

_____
(Signature and Date)

.9 Discuss how to bandage fractured ribs.

_____
(Signature and Date)

.10 Discuss the care given when a back injury is suspected.

_____
(Signature and Date)

.11 Define shock as applied to personal injuries.

_____
(Signature and Date)

.12 State the most common cause of shock.

_____
(Signature and Date)

.13 Discuss the symptoms of shock.

_____
(Signature and Date)

.14 Discuss the first aid treatment for victims of electrical shock.

_____
(Signature and Date)

.15 Define respiratory failure.

_____
(Signature and Date)

103 FIRST AID FUNDAMENTALS (CONT'D)

103.16 State the reason for immediate treatment of respiratory failure.

_____
(Signature and Date)

.17 Discuss the procedures of mouth-to-mouth resuscitation.

_____
(Signature and Date)

.18 Discuss the use of a SAR litter.

_____
(Signature and Date)

104 RULES OF THE ROAD FUNDAMENTALS

Reference:

[a] COMDTINST M16672.2D, Navigation Rules-International Inland

104.1 Define the following terms:

a. Vessel [rule 3]
b. Power-driven vessel [rule 3]
c. Sailing vessel [rule 3]
d. Underway [rule 3]
e. U.S. inland waters [rule 3]
f. Restricted visibility [rule 3]
g. Safe speed [rule 6]
h. Risk of collision [rule 7]
i. Distress signals [rule 37]
j. Give-way vessel [rule 16]
k. Stand-on vessel [rule 17]
l. Head-on (meeting) situation [rule 14]
m. Crossing situation [rule 15]
n. Overtaking situation [rule 13]
o. Prolonged/short blast [rule 32]
p. Vessel constrained by draft [rule 3]
q. Vessel restricted in ability to maneuver [rule 3]
r. Not under command [rule 3]
s. Vessel engaged in fishing/trawling [rule 3]

_____
(Signature and Date)

.2 Discuss the arc of visibility, range of visibility, and color of the following lights:

a. Forward masthead [rules 21, 22]
b. Aft masthead [rules 21, 22]
c. Port running light [rules 21, 22]
d. Starboard running light [rules 21, 22]
e. Stern [rules 21, 22]
f. All-around lights [rule 22]

104 RULES OF THE ROAD FUNDAMENTALS (CONT'D)

104.2
g. Flashing light [rule 21]
h. Special flashing light [rules 21, 22]
i. Submarine flashing beacon [rule 1]
j. Towing light [rule 21]

_____
(Signature and Date)

.3 Discuss the sound and light signals required during restricted visibility: [rule 35]

a. Power-driven vessel underway
    1. Making way
    2. Making no way
b. Sailing vessel underway
c. Power-driven vessel towing
d. Vessel constrained by draft
e. Vessel restricted in ability to maneuver
f. Vessel engaged in fishing/trawling
g. Vessel not under command
h. Vessel at anchor
    1. 100 meters or longer
    2. Less than 100 meters
i. Vessel aground

_____
(Signature and Date)

.4 Explain the following whistle signals used by a vessel in international waters: [rule 34]

a. One short
b. Two short
c. Three short
d. Five or more short
e. Two prolonged, one short
f. Two prolonged, two short
g. One prolonged, one short, one pronged, one short
h. Two prolonged

_____
(Signature and Date)

104 RULES OF THE ROAD FUNDAMENTALS (CONT'D)

104.5 Explain the following whistle signals used by a boat in inland waters: [rule 34]

a. Head-on (meeting) situation
    1. One short
    2. Two short
b. Overtaking situation
    1. One short
    2. Two short
c. Crossing
    1. One short
    2. Two short
d. Three short
e. Five or more short

_____
(Signature and Date)

.6 Discuss a situation requiring one prolonged blast. [rule 34]

_____
(Signature and Date)

.7 Explain the color and arrangement of lights used in international/inland waters during the following conditions:

a. Power-driven vessel more than 50 meters long underway [rule 23]
b. Power-driven vessel pushing or towing vessel (with length of tow less than 200 meters) [rule 24]
c. Power-driven vessel pushing or towing vessel (with length of tow more that 200 meters) [rule 24]
d. Power-driven pilot boat engaged in pilot duties and underway [rule 29]
e. Vessel at anchor or aground less than 50 meters [rule 30]
f. Vessel at anchor or aground more than 50 meters but less than 100 meters [rule 30]
g. Vessel engaged in fishing [rule 26]
h. Vessel engaged in trawling [rule 26]
i. Power-driven vessel engaged in minesweeping operations [rule 27]
j. Sailing vessel underway [rule 25]
k. Vessel constrained by draft [rule 28]
l. Vessel not under command [rule 27]
m. Vessel restricted in its ability to maneuver [rule 27]

_____
(Signature and Date)

104 RULES OF THE ROAD FUNDAMENTALS (CONT'D)

104.8 State the appropriate day shape used for the following:

a. Restricted maneuverability [rule 27]
b. At anchor [rules 29, 30]
c. Aground [rule 30]
d. Not under command [rule 27]
e. Towing [rule 24]
f. Fishing or trawling [rule 26]
g. Sailing vessel under sail with power on [rule 25]
h. Underwater operations [rule 27]
i. Mine clearance vessel [rule 27]
j. Vessel constrained by draft [rule 28]

_____
(Signature and Date)

.9 Explain in the following situations, which vessel is give-way, which vessel is stand-on, and action required of both vessels to pass safely:

a. Head-on situation [rule 14]
b. Crossing situation [rule 15]
c. Overtaking situation [rule 13]

_____
(Signature and Date)

.10 Discuss responsibilities between vessels with regard to keeping out of the way of one another. [rule 8]

_____
(Signature and Date)

.11 Explain the rule of good seamanship. [rule 2]

_____
(Signature and Date)

.12 Discuss the action required to avoid collision. [rule 8]

_____
(Signature and Date)

105 NAVIGATION FUNDAMENTALS

Reference:

[a] NAVEDTRA 14338, Quartermaster
[b] NAVEDTRA 14067, Seaman
[c] United States of America Nautical Chart Symbols Abbreviations and Terms, Chart No.1

105.1 Describe the following chart symbols: [ref. c]

a. Buoys [ch. q]
b. Obstructions [ch. k]
c. Shoals [ch. k]
d. Depth contour lines [ch. i]
e. Compass rose [ch. b]

_____
(Signature and Date)

.2 Describe the five basic buoy shapes. [ref. b, ch. 5]

_____
(Signature and Date)

.3 Describe the following buoys and discuss their purpose: [ref. b, ch. 5]

a. Lateral marks
b. Special purpose
c. Preferred channel
d. Cardinal
e. Safe water
f. Daymarkers

_____
(Signature and Date)

.4 Identify the two IALA buoyage systems and regions covered, and state the significant differences. [ref. b, ch. 5]

_____
(Signature and Date)

.5 Discuss where tide and current information should be obtained. [ref. a, ch. 7]

_____
(Signature and Date)

105 NAVIGATION FUNDAMENTALS (CONT'D)

105.6 Define the following terms: [ref. a]

a. Tide [ch. 7]
b. Mean lower low water [ch. 7]
c. Flood current [ch. 7]
d. Ebb current [ch. 7]
e. Tidal current [ch. 7]
f. Slack water [ch. 7]
g. Set/drift [ch. 7]

_____
(Signature and Date)

.7 Describe range markers and discuss how they are used in navigating narrow channels. [ref. a, ch. 4]

_____
(Signature and Date)

.8 Discuss how to convert a course to a true/compass course. [ref. b, ch. 5]

_____
(Signature and Date)

.9 Define deviation and variation and discuss their effect on a magnetic compass. [ref. b, ch. 5]

_____
(Signature and Date)

.10 Discuss the purpose and location of a deviation table. [ref. b, ch. 5]

_____
(Signature and Date)

.11 Discuss the purpose of Chart 1. [ref. c]

_____
(Signature and Date)

106 BOAT ETIQUETTE FUNDAMENTALS

References:

[a] NAVEDTRA 14067, Seaman
[b] NAVEDTRA 14244, Signalman
[c] NSTM S9086-TX-STM-010/CH-583, Boats and Small Craft (24 MAR 98)
[d] NAVEDTRA 14343, Boatswain's Mate

106.1 Discuss rendering/receiving passing honors for officers/officials embarked in boats. [ref. a, ch. 5]

_____
(Signature and Date)

.2 State the conditions which warrant the dipping of the national ensign. [ref. b, ch.10]

_____
(Signature and Date)

.3 Discuss boat hails used during daylight and night hours. [ref. a, ch. 5]

_____
(Signature and Date)

.4 Discuss the proper procedures for embarking/debarking officers and enlisted personnel in small boats. [ref. a, ch. 5]

_____
(Signature and Date)

.5 Discuss passing honors between naval vessels. [ref. b, ch. 10]

_____
(Signature and Date)

.6 State the rank of an officer embarked in a small boat using the following flag staff insignias: [ref. a, ch. 5]

a. Spread eagle
b. Halberd
c. Ball
d. Star
e. Flat truck

_____
(Signature and Date)

106 BOAT ETIQUETTE FUNDAMENTALS (CONT'D)

106.7 Discuss small boat recognition methods including color schemes and boat types for the following: [ref. c, ch. 8]

a. Flag Officer's barge
b. Unit Commander's gig
c. Commanding Officer's gig
d. Other ships' boats

_____
(Signature and Date)

.8 Discuss actions taken if conducting small boat operations during Colors.

_____
(Signature and Date)

107 COMMUNICATIONS FUNDAMENTALS

References:

[a] NAVEDTRA 14343, Boatswain's Mate
[b] NAVEDTRA 14244, Signalman

107.1 Identify and discuss the meaning and location of the following substitutes in-port and underway: [ref. a, ch. 7]

a. First sub
b. Second sub
c. Third sub
d. Fourth sub

_____
(Signature and Date)

.2 Identify and discuss the meaning of the following emergency flags: [ref. a, ch. 7]

a. Oscar
b. Five
c. November Charlie

_____
(Signature and Date)

.3 Identify and discuss the following warning flags: [ref. a, ch. 7]

a. Code Alfa
b. Bravo
c. Kilo
d. Lima
e. Hotel
f. Code Hotel

_____
(Signature and Date)

107 COMMUNICATIONS FUNDAMENTALS (CONT'D)

107.4 Identify and discuss the following information flags: [ref. a]

a. Mike [ch. 7]
b. India [ch. 7]
c. Papa [ch. 7]
d. Quebec [ch. 7]
e. Zero [ch. 13]
f. Uniform [ch. 7]

_____
(Signature and Date)

.5 Discuss signals and methods for boat recall. [ref. a, ch. 7]

_____
(Signature and Date)

.6 Discuss day and night rescue lifeboat signals from: [ref. a, ch. 6]

a. Ship to boat
b. Boat to ship

_____
(Signature and Date)

.7 State the day and night storm warning signals. [ref. a, ch. 7]

_____
(Signature and Date)

.8 Discuss the following communication procedures: [ref. a, ch. 7; ref. b, ch. 4]

a. Call signs
b. Operation
c. Radio communication etiquette
d. Emergency channel

_____
(Signature and Date)

108 DIESEL ENGINE FUNDAMENTALS

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Manufacturer's Technical Manual

108.1 State the use of each of the following:

a. Blower [ref. a, ch. 6]
b. Turbocharger [ref. a, ch. 6]
c. Intercooler/aftercooler [ref. a, ch. 7]
d. Heat exchanger [ref. a, ch. 7]
e. Jacket water pump [ref. a, ch. 7]
f. Raw water pump [ref. a, ch. 7]
g. Fuel injector [ref. a, ch. 9]
h. Fuel pump [ref. a, ch. 9]
i. Fuel water separator [ref. a, ch. 9]
j. Camshaft [ref. a, ch. 4]
k. Crankshaft [ref. a, ch. 4]
l. Flywheel [ref. a, ch. 4]
m. Valve actuating mechanism [ref. a, ch. 4]
n. Pistons [ref. a, ch. 4]
o. Cylinder liner [ref. a, ch. 3]
p. Cylinder head [ref. a, ch. 3]
q. Intake/exhaust valves [ref. a, ch. 6]
r. Valve cover [ref. a, ch. 6]
s. Expansion tank [ref. b]
t. Alternator [ref. b]

_____
(Signature and Date)

.2 State the function of each of the following: [ref. a]

a. Gages/thermometer [ch. 10]
b. Governor [ch. 9]
c. Blower shutdown [ch. 6]
d. Remote fuel shutdown [ch. 11]
e. Filter/Seastrainer [ch. 8]
f. Pitcock valve [ch. 8]

_____
(Signature and Date)

108 DIESEL ENGINE FUNDAMENTALS (CONT'D)

108.3 State the proper liquid level in the following:

a. Oil sump [ref. a, ch. 8]
b. Expansion tank [ref. a, ch. 7]
c. Fuel tank [ref. b]
d. Transmission [ref. b]
e. Outdrive [ref. b]
f. Steering oil level [ref. b]

_____
(Signature and Date)

.4 Discuss the principles of fuel injection in terms of the following: [ref. a, ch. 9]

a. Metering of fuel
b. Timing of fuel injection
c. Rate of fuel
d. Atomization of fuel
e. Pressurization and distribution of fuel

_____
(Signature and Date)

.5 Define the following: [ref. a, ch. 2]

a. 2-cycle engine
b. 4-cycle engine

_____
(Signature and Date)

.6 Describe the physical construction, function, and application of the following diesel engine components: [ref. a]

a. Crankshaft [ch. 4]
b. Camshaft [ch. 4]
c. Piston [ch. 4]
d. Cylinder liner [ch. 3]
e. Intake/exhaust valves/ports [ch. 5]
f. Engine block [ch. 3]
g. Cylinder head [ch. 3]
h. Fuel injectors [ch. 9]
i. Crankshaft vibration damper [ch. 4]
j. Connecting rods [ch. 4]
k. Expansion tank [ch. 7]

_____
(Signature and Date)

108 DIESEL ENGINE FUNDAMENTALS (CONT'D)

108.7 Define the following terms as used in engineering: [ref. a]

a. Intake [ch. 2]
b. Exhaust [ch. 2]
c. Compression [ch. 2]
d. Combustion [ch. 2]
e. Timing mechanism [ch. 5]
f. Scavenging air [ch. 6]
g. Turbocharger [ch. 6]
h. Viscosity [ch. 8]
i. Piston stroke [ch. 2]
j. Displacement [ch. 2]
k. Compression ratio [ch. 2]
l. Bore [ch. 2]

_____
(Signature and Date)

.8 Discuss the use of the following: [ref. a]

a. F-44 (JP-5) [ch. 9]
b. F-76 (DFM) [ch. 9]
c. Lube oil [ch. 8]
d. Grease [ch. 8]
e. Zinc [ch. 7]
f. Nalcool [ch. 7]
g. Ethylene glycol [ch. 7]

_____
(Signature and Date)

.9 Discuss the corrective action that must be taken for the following: [ref. b]

a. Loss of lube oil pressure
b. High jacket water temperature
c. Loss of raw water
d. Loss of fuel pressure
e. Insufficient air intake
f. High lube oil temperature
g. Leaking exhaust
h. Loss of jacket water
i. Loss of steering
j. Loss of engine/propulsion

_____
(Signature and Date)

109 START-UP AND SHUTDOWN FUNDAMENTALS

References:

[a] Boat Information Book (BIB)

109.1 Discuss preoperational procedures.

_____
(Signature and Date)

.2 State the liquid levels for the following:

a. Oil sump
b. Expansion tank
c. Fuel tank
d. Transmission
e. Steering fluid

_____
(Signature and Date)

.3 Discuss start-up procedures.

_____
(Signature and Date)

.4 Discuss shutdown procedures.

_____
(Signature and Date)

.5 State the normal operating ranges for the following:

a. Engine oil pressure
b. Jacket water temperature
c. Tachometer
d. Voltmeter

_____
(Signature and Date)

109 START-UP AND SHUTDOWN FUNDAMENTALS (CONT'D)

109.6 Discuss the following emergency procedures:

a. Overspeed engine
b. Loss of steering
c. Loss of throttle
d. Loss of lube oil pressure
e. Overheating

_____
(Signature and Date)

.7 Discuss emergency shutdown procedures.

_____
(Signature and Date)

110 OUTBOARD ENGINE FUNDAMENTALS

References:

[a] Engine Specific Technical Manual

110.1 State the use of the following:

a. Carburetor
b. Flywheel
c. Fuel filter
d. Fuel primer
e. Fuel pump
f. Powerpack
g. Stator
h. Spark plug
i. Shift rod
j. VRO
k. Propeller
l. Water pump
m. Starter
n. Power head
o. Tilt trim ram
p. Gearcase anodes
q. Driveshaft

_____
(Signature and Date)

.2 State the function of each the following:

a. Stator
b. Ignition system
c. Powerpack
d. Wiring harness

_____
(Signature and Date)

.3 State the proper liquid level of the following:

a. Oil tank
b. Fuel tank
c. Lower gear case

_____
(Signature and Date)

110 OUTBOARD ENGINE FUNDAMENTALS (CONT'D)

110.4 Discuss the principles of fuel to oil ratios in terms of the following:

a. Metering fuel
b. Metering oil
c. Rate of fuel/oil

_____
(Signature and Date)

.5 Define the following:

a. 2-cycle engine
b. 4-cycle engine

_____
(Signature and Date)

.6 Discuss the use of the following:

a. Gear case lubricant
b. MOGAS
c. Lube oil
d. Triple Guard grease
e. Zinc

_____
(Signature and Date)

.7 Discuss corrective action required for the following:

a. Loss of lube oil pressure
b. Loss of raw water
c. Loss of fuel pressure
d. Insufficient air intake
e. Loss of steering
f. Loss of ignition spark

_____
(Signature and Date)

111 OUTDRIVE FUNDAMENTALS

References:

[a] Manufacturer's Technical Manual

111.1 State the use of the following:

a. Manifold assembly
b. Steering lever
c. Gimbal ring
d. Bell housing
e. Bellows
f. Trim cylinder
g. Hydraulic hoses
h. Transom box
i. Driveshaft
j. Driveshaft housing
k. Clutch assembly
l. Universal joint assembly
m. Shift linkage
n. Anode plate assembly
o. Gear housing
p. Bearing carrier
q. Propeller

_____
(Signature and Date)

.2 Discuss the function of tilt and trim.

_____
(Signature and Date)

.3 Describe the relationship between the steering system and outdrive.

_____
(Signature and Date)

.4 Identify the operating limitations in relation to trim.

_____
(Signature and Date)

111 OUTDRIVE FUNDAMENTALS (CONT'D)

111.5 Describe the relationship of the following:

a. Upper drive shaft and gear assembly
b. Universal joint
c. Lower driveshaft and gear assembly
d. Propeller shaft

_____
(Signature and Date)

.6 Discuss the use of the following:

a. 80/90 Gear oil
b. Hydraulic fluid

_____
(Signature and Date)

.7 Discuss the corrective action for the loss of the following:

a. Lube oil
b. Hydraulic press
c. Propeller

_____
(Signature and Date)

112 JET DRIVE (11 METER) FUNDAMENTALS

References:

[a] Manufacturer's Technical Manual
[b] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[c] NAVEDTRA 14343, Boatswain's Mate
[d] Boat Information Book

112.1 State the use of the following: [ref. a]

a. Impeller
b. Casing
c. Nozzle
d. Shaft seal
e. Main shafting
f. Steering system
g. Hydraulic actuators and piping
h. Thrust bearing
i. Transom mounting fasteners
j. Zinc anodes
k. Intake grates
l. TVI

_____
(Signature and Date)

.2 Discuss how the following are achieved: [ref. a]

a. Steering
b. Emergency braking
c. Astern thrust
d. Forward thrust
e. Side thrust
f. Zero thrust
g. Maneuvering and docking

_____
(Signature and Date)

.3 State the precautions to be taken in shallow water. [ref. c, ch 6, ref. d]

_____
(Signature and Date)

112 JET DRIVE (11 METER) FUNDAMENTALS (CONT'D)

112.4 Identify procedures for clearing blocked water jets. [ref. a, ref. b, ch C13]

_____
(Signature and Date)

.5 State the indicators of system malfunctions/failure. [ref. a]

_____
(Signature and Date)

113 TRIM TAB FUNDAMENTALS

References:

[a] Electromechanical Trim Tab System Manufacturer's Manual
[b] LECTROTAB Autoset II System Manufacturer's Manual
[c] Boat Information Book (BIB)

113.1 Describe the procedures for setting up memory. [ref. a]

_____
(Signature and Date)

.2 Describe the procedures for correcting boat list. [ref. b]

_____
(Signature and Date)

.3 Identify the effects of the trim tab while maneuvering. [ref. c]

_____
(Signature and Date)

.4 Describe the purpose of auto reset [ref. b]

_____
(Signature and Date)

.5 Describe the procedures and effect of steering by trim tabs.

_____
(Signature and Date)

114 MARINE SPECIES AWARENESS FUNDAMENTALS

References:

[a] NAVEDTRA 12968-B Lookout Training Handbook, Chapter 13

114.1 Define the following:

a. Marine Mammal Protection Act (MMPA)
b. Endangered Species Act
c. Coral reefs
d. Take
e. Harass
f. Protective measures
g. Avoidance

_____
(Signature and Date)

.2 Discuss the responsibilities Navy has for the environment?

_____
(Signature and Date)

.3 Identify the following marine life and their habitat:

a. Sea turtles
b. Cetaceans
c. Pinnipeds
d. Coral reefs
e. Whales
f. Sharks
g. Dolphins

_____
(Signature and Date)

.4 Discuss the following clues of marine mammal presence:

a. Dorsal fin orientation
b. Fluke prints and splashes
c. Blow/Spout
d. Diving
e. Spy hopping
f. Logging

_____
(Signature and Date)

114 MARINE SPECIES AWARENESS FUNDAMENTALS (CONT'D)

114.5 Identify reports required during interaction with marine mammals or sea turtles?

_____

(Signature and Date)

200 INTRODUCTION TO SYSTEMS

200.1 BASIC BUILDING BLOCKS

In this section, the equipment is broken down into smaller, more comprehensible, functional systems as basic building blocks in the learning process. Each system is written to reflect specific watchstation requirements by identifying the equipment most relevant to one or more designated watchstanders. The less complex systems may be identified and covered quickly or relegated to a lower priority to permit greater emphasis on more significant or complex systems.

200.2 COMPONENTS AND COMPONENT PARTS

For learning purposes each system is disassembled into two levels. Systems have components and components have parts. Do not expect to see every item which appears on a parts list to be in the PQS. Only those items which must be understood for operation/maintenance are listed. Normally a number of very broad (overview) systems are disassembled into their components or parts with the big picture as the learning goal. Items listed as components in such a system may then be analyzed as separate systems and broken down into components and parts. Example: the turbogenerators may be listed as a component of the Ship's Service Electrical Distribution system and then later detailed as an individual system for closer study.

200.3 FORMAT

Each system is organized within the following format:

- It lists the references to be used for study and asks you to explain the function of each system.
- It asks for the static facts of what or where the components and component parts are in relation to the system.
- It directs attention to the dynamics of how the component and component parts operate to make the system function.
- It specifies the parameters that must be immediately recalled.
- It requires study of the relationship between the system being studied and other systems or areas.

200.4 HOW TO COMPLETE

The systems you must complete are listed in the Prerequisites section of each watchstation. When you have mastered one or more systems, contact your Qualifier. The Qualifier will give you an oral examination on each system and, if satisfied you have sufficient knowledge of the system, will sign the appropriate system line items. You will be expected to demonstrate through oral or written examination a thorough understanding of each system required for your watchstation.

201 SMALL BOAT STRUCTURE SYSTEM

References:

[a] NAVEDTRA 14325, Basic Military Requirements (BMR)
[b] NAVEDTRA 14067, Seaman
[c] NAVEDTRA 14343, Boatswain's Mate
[d] NSTM S9086-TX-STM-010/CH-583, Boats and Small Craft (24 MAR 98)
[e] Boat Information Book (BIB)
[f] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

201.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?

		Questions
201.1.1	Hull [ref. a, Glossary]	A
	a. Free board [ref. a, Glossary]	A B
	b. Draft [ref. a, Glossary]	A
	c. Towing eye tie down [ref. a, ch. 6]	A B
	d. Keel [ref. a, Glossary]	A B
	e. Strut [ref. c, Glossary]	A B
	f. Stem [ref. a, Glossary]	A B
	g. Through-hull fitting [ref. d, sec. 7]	A B
	h. Transom [ref. c, ch. 6]	A B
	i. Sponsons/sponsons attachment [ref. e]	A B
.2	Rudder [ref. a, Glossary]	A B D
.3	Outdrives [ref. e]	A B D
.4	Flagstaff [ref. a, Glossary]	A B
.5	Jack staff (navigation light) [ref. e]	A B C
.6	Hoisting sling [ref. d, sec. 7]	A B
.7	Handrails/taffrails [ref. d, sec. 8]	A B
.8	Chocks (open/closed/roller) [ref. a, Glossary]	A B
.9	Sampson post [ref. e]	A B C

_____
(Signature and Date)

201 SMALL BOAT STRUCTURE SYSTEM (CONT'D)

201.2 PRINCIPLES OF OPERATION

201.2.1 How do the components work together to achieve the system's function? [ref. b, ch. 5]

_____
(Signature and Date)

201.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

201.4 SYSTEM INTERFACE

201.4.1 How do the following outside influences affect the operation of this system: [ref. b, ch. 5]

a. Sea state
b. Weather

_____
(Signature and Date)

201.5 SAFETY PRECAUTIONS

201.5.1 What safety precautions must be observed when operating this system? [ref. c, ch. 6, ref. f, ch. C4]

_____
(Signature and Date)

202 MARINE PROPULSION GEAR ASSEMBLY SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Boat Information Book (BIB)
[c] Manufacturer's Technical Manual
[d] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

202.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the effect on system operation if this component fails?
I. What is the source of control signals?
J. What is the function of each position?

		Questions
202.1.1	Marine reduction gear [ref. a, ch. 12]	A B C D E G H J
.2	Control mechanism [ref. b]	A B D E F G H J
.3	Oil cooler [ref. b]	A B F G H
.4	Oil filter [ref. c]	A B F G H
.5	Oil pressure gage [ref. c]	A B C F G H I
.6	Oil dipstick [ref. c]	A B F
.7	Flexible tubing/hose [ref. b]	A B G H
.8	Come home feature [ref. c]	A B D
.9	Shaft [ref. b]	A B C E G H
.10	Propeller [ref. b]	A B C D G H

_____
(Signature and Date)

202 MARINE PROPULSION GEAR ASSEMBLY SYSTEM (CONT'D)

202.2 PRINCIPLES OF OPERATION

202.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 12]

.2 What indications will you receive if the system is malfunctioning? [ref. a, ch. 12]

_____
(Signature and Date)

202.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. b]

A. What are the allowable operating limits?
B. Where are the parameters sensed or monitored?
C. What is the physical location of the indicators?

		Questions
202.3.1	Oil pressure	A B C
.2	Oil temperature	A B C

_____
(Signature and Date)

202.4 SYSTEM INTERFACE

202.4.1 How do the following outside influences affect the operation of this system: [ref. b]

a. Towing another craft
b. Objects floating in water
c. Loss of shaft/propeller
d. High bilge level

.2 How does this system interface with the following: [ref. a, ch. 7]

a. Freshwater Cooling system
b. Main Propulsion Diesel Engine system

_____
(Signature and Date)

202.5 SAFETY PRECAUTIONS

202.5.1 What safety precautions must be observed when operating this system? [ref. d, ch. C13]

_____
(Signature and Date)

203 INTAKE AND EXHAUST SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[c] Manufacturer's Technical Manual

203.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What protection is provided by this component/component part?
D. What are the probable indications if this component fails?
E. What is the effect on system operation if this component fails?
F. What is the function of each position?

		Questions
203.1.1	Intake and Exhaust system [ref. c]	A
.2	Air silencer/filter [ref. a, ch. 6]	A B C D E
.3	Blower/turbocharger [ref. a, ch. 6]	A B D E
.4	Intake manifold/air box [ref. a, ch. 6]	A B D E
.5	Intake/exhaust valves/ports [ref. a, ch. 6]	A B D E F
.6	Cylinder head [ref. a, ch. 3]	A B D E
.7	Exhaust manifold [ref. a, ch. 6]	A B D E
.8	Exhaust muffler [ref. c]	A B C

_____
(Signature and Date)

203.2 PRINCIPLES OF OPERATION

203.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 6]

.2 Draw a diagram of this system. [ref. a, ch. 6]

.3 What indications will you receive if the system is malfunctioning? [ref. a, ch. 6]

_____
(Signature and Date)

203 INTAKE AND EXHAUST SYSTEM (CONT'D)

203.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

203.4 SYSTEM INTERFACE

203.4.1 How does this system interface with the following: [ref. a, ch. 6]

a. Fuel Injection system
b. Raw water exhausted/cooling

_____
(Signature and Date)

203.5 SAFETY PRECAUTIONS

203.5.1 What safety precautions must be observed when operating this system? [ref. b, ch. C13]

_____
(Signature and Date)

204 FUEL OIL SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Boat Information Book (BIB)
[c] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[d] Manufacturer's Technical Manual

204.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What protection is provided by this component/component part?
F. What are the probable indications if this component fails?
G. What is the effect on system operation if this component fails?
H. What is the function of each position?

		Questions
204.1.1	Fuel Oil system [ref. a, ch. 9; ref. d]	A
.2	Service tank [ref. b]	A B
.3	Lift pump [ref. d]	A B C F G
.4	Filters/strainers [ref. a, ch. 9]	A B E F G
.5	Fuel oil/water separator [ref. a, ch. 9]	A B E F G
.6	Hoses [ref. d]	A B F G
.7	Shutoff valves (supply/return) [ref. b]	A B D E F G H
.8	Injectors/nozzles [ref. a, ch. 9]	A B F G
.9	Fuel injection pump [ref. a, ch. 9]	A B C F G
.10	Restricter fitting [ref. a, ch. 9; ref. b]	A B F G

_____
(Signature and Date)

204 FUEL OIL SYSTEM (CONT'D)

204.2 PRINCIPLES OF OPERATION

204.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 9]

.2 Draw a diagram of this system. [ref. a, ch. 9]

.3 What is the sequence of component involvement to: [ref. d]

a. Light off
b. Operate
c. Shut down

.4 What indications will you receive if the system is malfunctioning? [ref. a, ch. 9]

_____
(Signature and Date)

204.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

204.4 SYSTEM INTERFACE

204.4.1 How does the cold weather affect the operation of this system? [ref. b]

.2 How does the main propulsion diesel engine interface with this system? [ref. a, ch. 9]

_____
(Signature and Date)

204.5 SAFETY PRECAUTIONS

204.5.1 What special safety precautions apply to the stripping of tanks/filters/strainers? [ref. c, ch. C10]

.2 What safety precautions must be observed during: [ref. c, chs. C5, C10]

a. Operation of the system
b. Refueling

_____
(Signature and Date)

205 LUBE OIL SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[c] Manufacturer's Technical Manual

205.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the safety/protective devices for this component/component part?
E. What protection is provided by this component/component part?
F. What are the probable indications if this component fails?
G. What is the effect on system operation if this component fails?
H. What is the source of control signals?

		Questions
205.1.1	Lube Oil system [ref. a, ch. 9; ref. c]	A
.2	Lube oil pump [ref. a, ch. 8; ref. c]	A B C E F G
.3	Lube oil strainer/filter [ref. a, ch. 8]	A B D E F G
.4	Lube oil cooler [ref. a, ch. 8; ref. c]	A B E F G
.5	Dipstick [ref. a, ch. 8; ref. c]	A B E
.6	Flexible hoses [ref. a, ch. 8]	A B F G
.7	Relief valve [ref. a, ch. 8; ref. c]	A B E F G
.8	Pressure gage [ref. a, ch. 8]	A B C E F G H
.9	Lube oil sump [ref. a, ch. 8; ref. c]	A B F

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(Signature and Date)

205.2 PRINCIPLES OF OPERATION

205.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 8]

.2 Draw a diagram of this system. [ref. c]

.3 What indications will you receive if the system is malfunctioning? [ref. a, ch. 8]

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(Signature and Date)

205 LUBE OIL SYSTEM (CONT'D)

205.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. a, ch. 8]

A. What is the normal operating value?
B. Where are the parameters sensed or monitored?
C. What is the physical location of the indicators?
D. What is the alarm set point?

		Questions
205.3.1	Oil pressure	A B C D

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(Signature and Date)

205.4 SYSTEM INTERFACE

205.4.1 How do the following outside influences affect the operation of this system: [ref. a, ch. 8]

a. Loss of jacket water
b. Loss of raw water
c. Diluted lubricating oil

.2 How does this system interface with the Jacket Water Cooling system? [ref. a, ch. 8]

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(Signature and Date)

205.5 SAFETY PRECAUTIONS

205.5.1 What safety precautions must be observed when operating this system? [ref. b, ch. C10]

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(Signature and Date)

206 JACKET WATER SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Boat Information Book (BIB)
[c] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[d] Manufacturer's Technical Manual

206.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the effect on system operation if this component fails?
I. What is the function of each position?

		Questions
206.1.1	Jacket Water system [ref. a, ch. 7; ref. d]	A
.2	Jacket Water pump [ref. a, ch. 7]	A B C F G H
.3	Expansion tank [ref. a, ch. 7; ref. d]	A B F H
.4	Heat exchangers [ref. a, ch. 7]	A B F G H
.5	Piping system [ref. a, ch. 7]	A B F G H
.6	Thermostat [ref. a, ch. 7; ref. d]	A B D E F G H I
.7	Temperature gage [ref. a, ch. 7]	A B C F G H

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(Signature and Date)

206.2 PRINCIPLES OF OPERATION

206.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 7]

.2 Draw a diagram of this system. [ref. d]

.3 What indications will you receive if the system is malfunctioning? [ref. d]

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(Signature and Date)

206 JACKET WATER SYSTEM (CONT'D)

206.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [refs. b, d]

A. What is the normal operating value?
B. Where are the parameters sensed or monitored?
C. What is the physical location of the indicators?
D. What is the alarm set point?

		Questions
206.3.1	Cooling water temperature	A B C D
.2	Expansion tank water level	A B C

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(Signature and Date)

206.4 SYSTEM INTERFACE

206.4.1 How do the following outside influences affect the operation of this system:

a. Loss of raw water [ref. b]
b. Variation in engine rpm [ref. d]

.2 How does this system interface with the following: [ref. d]

a. Lube Oil system
b. Raw Water system

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(Signature and Date)

206.5 SAFETY PRECAUTIONS

206.5.1 What safety precautions must be observed when treating jacket water? [ref. c, ch. C13]

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(Signature and Date)

207 RAW WATER SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Manufacturer's Technical Manual
[c] Boat Information Book (BIB)

207.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What protection is provided by this component/component part?
F. What are the probable indications if this component fails?
G. What is the effect on system operation if this component fails?
H. What is the function of each position?

		Questions
207.1.1	Raw Water system [ref. a, ch. 7; ref. b]	A
.2	Sea cock [ref. a, ch. 7]	A B E G H
.3	Sea chest [ref. a, ch. 7]	A B E F G
.4	Duplex/simplex strainer [ref. b]	A B D E F G H
.5	Raw water pump [ref. a, ch. 7]	A B C D E F G
.6	Heat exchanger [ref. b]	A B E F G
.7	Zincs [ref. b]	A B
.8	Raw water stop valve [ref. a, ch. 7]	A B H

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(Signature and Date)

207.2 PRINCIPLES OF OPERATION

207.2.1 How do the components work together to achieve the system's function? [ref. b]

.2 Draw a diagram of this system. [refs. b, c]

.3 What indications will you receive if the system is malfunctioning? [ref. b]

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(Signature and Date)

207 RAW WATER SYSTEM (CONT'D)

207.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

207.4 SYSTEM INTERFACE

207.4.1 How do variations in engine rpm affect the operation of this system? [ref. b]

.2 How does this system interface with the following:

a. Jacket Water Cooling system [ref. a, ch. 7]
b. Bilge Pump Priming system [ref. c]

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(Signature and Date)

207.5 SAFETY PRECAUTIONS

207.5.1 What safety precautions must be observed when operating this system? [ref. a, ch. 7]

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(Signature and Date)

208 STARTING SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Boat Information Book (BIB)
[c] Manufacturer's Technical Manual
[d] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual

208.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the effect on system operation if this component fails?

		Questions
208.1.1	Starting system [ref. a, ch. 10; ref. c]	A
.2	Starter [ref. a, ch. 10]	A B C D G H
.3	Battery [ref. a, ch. 10]	A B C F G H
.4	Starter solenoid [ref. a, ch. 10]	A B C E G H
.5	Starter switch [ref. a, ch. 10]	A B C D G H
.6	Cold weather starting device [ref. a, ch. 10]	A B C G

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(Signature and Date)

208.2 PRINCIPLES OF OPERATION

208.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 10, ref. c]

.2 What is the sequence of component involvement to initiate: [refs. b, c]

a. Lighting off
b. Securing

208 STARTING SYSTEM (CONT'D)

208.2.3 What indications will you receive if the system is malfunctioning? [refs. b, c]

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(Signature and Date)

208.3 PARAMETERS/OPERATING LIMITS

208.3.1 What is the normal operating value of starting current? [ref. a, ch. 10, ref. c]

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(Signature and Date)

208.4 SYSTEM INTERFACE

208.4.1 How do the following outside influences affect the operation of this system:

a. Loss of electrical power [refs. b, c]
b. Cold weather [ref. a, ch. 10]

.2 How does this system interface with the main propulsion diesel engine? [ref. a, ch. 10]

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(Signature and Date)

208.5 SAFETY PRECAUTIONS

208.5.1 What safety precautions must be observed when operating this system? [ref. a, ch. 10, ref. d, vol. B7]

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(Signature and Date)

209 ELECTRICAL SYSTEM

References:

[a] NAVEDTRA 14331, Engineman 3
[b] Manufacturer's Technical Manual
[c] Boat Information Book (BIB)
[d] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

209.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What protection is provided by this component/component part?
F. What are the probable indications if this component fails?
G. What is the effect on system operation if this component fails?
H. What is the function of each position?

		Questions
209.1.1	Electrical system [ref. a, ch. 10; ref. b]	A
.2	Alternator/generator [ref. a, ch. 10; ref. b]	A B C E F G
.3	Voltage regulator [ref. b]	A B E F G
.4	Batteries [ref. a, ch. 10]	A B F G
.5	DC power panel [ref. c]	A B C D E F G H

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(Signature and Date)

209.2 PRINCIPLES OF OPERATION

209.2.1 How do the components work together to achieve the system's function? [ref. a, chs. 7, 10; ref. c; ref. d, vol II, ch. C9]

.2 What indications will you receive if the system is malfunctioning? [refs. b, c]

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(Signature and Date)

209 ELECTRICAL SYSTEM (CONT'D)

209.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [refs. b, c]

A. What is the normal operating value?
B. Where are the parameters sensed or monitored?

		Questions
		A B
209.3.1	Alternator/generator	

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(Signature and Date)

209.4 SYSTEM INTERFACE – None to be discussed.

209.5 SAFETY PRECAUTIONS

209.5.1 What special safety precautions apply to charging batteries? [ref. d, vol II, ch. C9]

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(Signature and Date)

210 INSTRUMENT PANEL AND STEERING SYSTEM

References:

[a] Boat Information Book (BIB)
[b] Cummins MerCruiser Diesel System Speedometer and Tachometer (11 Meter RHIB) Manufacturer's Manual

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210.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the effect on system operation if this component fails?
I. What is the function of each position?

		Questions
210.1.1	Instrument Panel and Steering system [refs. a, b]	A
.2	Tachometer [refs. a, b]	A B C D F G H
.3	Digital Display Screen [ref. b]	A B C D F G H
.4	Engine oil pressure gage [refs. a, b]	A B C F G H
.5	Ammeter [refs. a, b]	A B C F G H
.6	Drive oil pressure gage [refs. a, b]	A B C F G H
.7	Water temperature gage [refs. a, b]	A B C F G H
.8	Shifting lever/throttle [ref. a]	A B D E F G H I
.9	Engine shutdown control [ref. a]	A B C D F G H
.10	Emergency engine shutdown control [ref. a]	A B D F H
.11	Electrical and mechanical horns [ref. a]	A B C G H
.12	Starter switch [ref. a]	A B C D G H
.13	Instrument light switches [ref. a]	A B C D G H I
.14	Helm and steering cable [ref. a]	A B D G H I
.15	Tiller/emergency steering [ref. a]	A B D G H I
.16	Windshield wiper switch [ref. a]	A B C D G H I
.17	Hydraulic steering pump [ref. a]	A B C G H
.18	Speedometer [ref. b]	A B C D F G H
.19	Bucket control [ref. a] (11 Meter RHIB)	A B C D G H I
.20	Reverse gear controller [ref. a] (11 Meter RHIB)	A B C D G H I

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(Signature and Date)

210 INSTRUMENT PANEL AND STEERING SYSTEM (CONT'D)

210.2 PRINCIPLES OF OPERATION

210.2.1 How do the components work together to achieve the system's function? [refs. a, b]

.2 What indications will you receive if the system is malfunctioning? [refs. a, b]

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(Signature and Date)

210.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

A. What is the normal operating value?
B. Where are the parameters sensed or monitored?
C. What is the physical location of the indicators?
D. What is the alarm set point?

		Questions
210.3.1	RPM [ref. b]	A B C
.2	Engine oil pressure [ref. b]	A B C D
.3	Amperage [ref. b]	A B C D

_____
(Signature and Date)

210.4 SYSTEM INTERFACE - None to be Discussed.

210.5 SAFETY PRECAUTIONS

210.5.1 What special safety precautions apply to: [ref a]

a. Starting engines
b. Duration of time starter is activated

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(Signature and Date)

211 DRAINAGE SYSTEM

References:

[a] Boat Information Book (BIB)
[b] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

211.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref. a]

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the safety/protective devices for this component/component part?
E. What protection is provided by this component/component part?
F. What are the probable indications if this component fails?
G. What is the effect on system operation if this component fails?
H. What is the function of each position?

		Questions
211.1.1	Drainage system	A
.2	Bilge pump	A B C D E F G
.3	Actuating clutch	A B F G H
.4	Suction piping	A B F G
.5	Check valves	A B E F G
.6	Foot valves	A B E F G
.7	Overboard discharge valve	A B F G
.8	Hand bilge pump	A B F G
.9	Bilge plug	A B E F G H

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(Signature and Date)

211.2 PRINCIPLES OF OPERATION

211.2.1 How do the components work together to achieve the system's function? [ref. a]

.2 Draw a diagram of this system. [ref. a]

211 DRAINAGE SYSTEM (CONT'D)

211.2.3 What is the sequence of component involvement to: [ref. a]

a. Actuate the system
b. Secure the system

.4 What indications will you receive if the system is malfunctioning? [ref. a]

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(Signature and Date)

211.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

211.4 SYSTEM INTERFACE

211.4.1 How does loss of the diesel engine affect the operation of this system? [ref. a]

.2 How does this system interface with the diesel engine? [ref. a]

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(Signature and Date)

211.5 SAFETY PRECAUTIONS

211.5.1 What safety precautions must be observed when operating this system? [ref. b, chs. C9, C23]

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(Signature and Date)

212 OUTBOARD ENGINE SYSTEM

References:

[a] Manufacturer's Operating Manual, Engine Specific
[b] Boat Information Book [BIB]
[c] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

212.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [refs. a, b]

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?

		Questions
212.1.1	Cover	A F
.2	Power head	A B E F G
.3	Propeller	A B D G
.4	Tiller and throttle control	A B C D E G
.5	Shift handle	A B D G
.6	Transom mount/power trim and tilt	A C D G
.7	Safety lanyard	A E F
.8	Water intake	A B E
.9	Water pump	A B E G
.10	Manual primer	A B G
.11	Dead-man switch	A F
.12	Fuel pump/filter	A B F G
.13	VRO	A B C F G
.14	Engine lube oil sump	A B
.15	Lower unit	A B G
.16	Mid section	A B G
.17	Fuel tank	A B E F G

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(Signature and Date)

212 OUTBOARD ENGINE SYSTEM (CONT'D)

212.2 PRINCIPLES OF OPERATION

212.2.1 How do the components work together to achieve the system's function? [refs. a, b]

.2 What is the path of the fuel through the system? [refs. a, b]

.3 What indications are received if the system is overheating? [ref. a]

.4 Explain the operation to start the engine. [refs. a, b]

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(Signature and Date)

212.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [refs. a, b]

A. What is the normal operating value?
B. Where are the parameters sensed or monitored?
C. What is the physical location of the indicators?
D. What is the alarm set point?

		Questions
212.3.1	RPM	A B C
.2	Operating temperature	A B C D
.3	Oil pressure	A B C D

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(Signature and Date)

212.4 SYSTEM INTERFACE

212.4.1 How do the following variables affect the operation of this system? [ref. a]

a. Water intake
b. Fuel quantity
c. Marine organisms, debris, and pollutants
d. Spark plug gap
e. Fuel and oil mixture

.2 How does this system interface with the craft transom? [refs. a, b]

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(Signature and Date)

212 OUTBOARD ENGINE SYSTEM (CONT'D)

212.5 SAFETY PRECAUTIONS

212.5.1 What safety precautions must be observed when operating this system? [ref. a, ref. b, ref. c ch. C4]

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(Signature and Date)

213 OUTDRIVE SYSTEM

References:

[a] Manufacturer's Operating Manual, Outdrive Specific
[b] Boat Information Book [BIB]
[c] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

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213.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref. a, ref. b, ref c]

A. What is its function?
B. Where is it located?
C. What are the modes of operation or control?
D. What are the probable indications if this component fails?

		Questions
213.1.1	Propeller	A B D
.2	Spline Shaft	A B D
.3	Gimbal Gear	A B C D
.4	Lower Unit	A B D
.5	Gimbal Gear Reservoir	A B
.6	Tilt and Trim Ram	A B C D

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(Signature and Date)

213.2 PRINCIPLES OF OPERATION

213.2.1 How do the components work together to achieve the system's function? [ref. a, ref. b]

.2 What indications are received if the system has low oil? [ref. a]

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(Signature and Date)

213 OUTDRIVE SYSTEM (CONT'D)

213.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [refs. a, b]

A. Where are the parameters sensed or monitored?
B. What is the physical location of the indicators?
C. What is the alarm set point?

		Questions
		A B C
213.3.1	Oil level	

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(Signature and Date)

213.4 SYSTEM INTERFACE

213.4.1 How does this system interface with the craft transom? [refs. a, b]

.2 How does this system interface with the steering system? [refs. a, b]

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(Signature and Date)

213.5 SAFETY PRECAUTIONS

213.5.1 What safety precautions must be observed when operating this system? [ref. a, ref. b, ref. c ch. C4]

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(Signature and Date)

214 JET DRIVE (11 METER) SYSTEM

References:

[a] Boat Information Book (BIB)
[b] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

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214.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref. a]

A. What is its function?
B. Where is it located?
C. What are the modes of operation or control?
D. What are the safety/protective devices for this component/component part?
E. What are the probable indications if this component fails?
F. What is the source of control signals?

		Questions
214.1.1	Control cable	A B E F
.2	Three way valve	A B C E F
.3	Aft hydraulic ram	A B E
.4	Pressure relief valve	A B E
.5	Hydraulic pump	A B E
.6	Helm control	A B C D E

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(Signature and Date)

214.2 PRINCIPLES OF OPERATION

214.2.1 How do the components work together to achieve the system's function? [ref. a]

.2 What indications are received if the system is malfunctioning? [ref. a]

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(Signature and Date)

214 JET DRIVE (11 METER) SYSTEM (CONT'D)

214.3 PARAMETERS/OPERATING LIMITS – NONE TO DISCUSS.

214.4 SYSTEM INTERFACE

214.4.1 How do the following variables affect the operation of this system? [ref. a]

a. Engine casualty
b. Transmission casualty
c. Clogged pumps/strainers
d. Jammed reversing bucket (ducting)
e. Worn reversing bucket (ducting)
f. Hydraulic system casualty

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(Signature and Date)

214.5 SAFETY PRECAUTIONS

214.5.1 What safety precautions apply when operating this system?
[ref. b, ch. C4]

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(Signature and Date)

215 SMARTCRAFT DIESEL VIEW (11 METER) SYSTEM

References:

[a] Cummins MercCruiser Diesel SmartCraft Manufacturer's Operation Manual
[b] Boat Information Book (BIB)
[c] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

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215.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref. a]

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control

		Questions
215.1.1	Cover	A B
.2	Diesel view	A B C D
.3	Keypad	A B D
.4	Start-up screen	A D
.5	Home page screen	A D
.6	Favorites screen	A D
.7	Propulsion screen	A D
.8	Vessel screen	A D
.9	NAV-Fuel screen	A D
.10	Settings screen	A D
.11	Systems screen	A D

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(Signature and Date)

215.2 PRINCIPLES OF OPERATION – None to discuss.

215.3 PARAMETERS/OPERATING LIMITS – None to discuss.

215.4 SYSTEM INTERFACE – None to discuss.

215.5 SAFETY PRECAUTIONS

215.5.1 What safety precautions must be observed during operation of the system? [ref. c, ch C9]

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(Signature and Date)

216 RADAR SYSTEM

References:

[a] Radar Specific Operator's Manual
[b] The American Practical Navigator, (BOWDITCH), Pub. No. 9
[c] OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[d] OP-4, Ammunition and Explosive Safety Afloat

216.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref. a]

A. What is its function?
B. Where is it located?
C. What are the modes of operation or control?
D. What are the probable indications if this component fails?
E. What is the function of each position?

		Questions
216.1.1	Power switch	A B D
.2	Range scale selector switch (miles)	A B C D E
.3	Brightness button	A B C D E
.4	FTC button	A B C D E
.5	Heading marker switch	A B C D E
.6	Bearing cursor control	A B C D E
.7	Cursor dim control	A B C D E
.8	STC button	A B C D E
.9	Gain control	A B C D E
.10	True/relative bearing control	A B C D E
.11	Range ring intensity control	A B C D E
.12	Tuning control	A B C D E

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(Signature and Date)

216.2 PRINCIPLES OF OPERATION

216.2.1 How do the components work together to achieve the system's function? [ref. c, ref. d, ch. 13]

216.2.2 What indications are received if the system is malfunctioning? [ref. a, ref. b, ch. 13]

_____
(Signature and Date)

216 RADAR SYSTEM (CONT'D)

216.3 PARAMETERS/OPERATING LIMITS

216.3.1 What variables can effect minimum/maximum ranges? [ref. a, ref. b, ch. 13]

_____
(Signature and Date)

216.4 SYSTEM INTERFACE

216.4.1 How do the following outside influences affect the operation of this system? [ref. a; ref. b, ch. 13]

a. Adverse weather conditions
b. Loss of electrical power
c. Power fluctuations
d. Electromagnetic interference

.2 How does this system interface with the navigation equipment? [ref. a; ref. b, ch. 13]

_____
(Signature and Date)

216.5 SAFETY PRECAUTIONS

216.5.1 What special safety precautions apply to HERO? [ref. d, ch. 3]

.2 What safety precautions must be observed when operating this system? [ref. c, ch. C9]

_____
(Signature and Date)

217 GLOBAL POSITIONING SYSTEM (GPS)

References:

[a] Manufacturer's Technical Manual
[b] BIB Boat Information Book

217.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each: [ref a, ref b]

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the probable indications if this component fails?
F. What is the effect on system operation if this component fails?

		Questions
217.1.1	Control display unit	A B C D E F
.2	Antenna	A B E F
.3	Power supply	A B E F
.4	Depth Sounder	A B C D E

_____
(Signature and Date)

217.2 PRINCIPLES OF OPERATION

217.2.1 How do the components work together to achieve the system's function? [ref. a, ref. b]

.2 What is the sequence of component involvement to accomplish: [ref. a]
a. Mode/on
b. Initialize
c. Enter way points
d. Enter routes
e. Navigate by way points
f. Display track
g. Mode/off

217.2.3 What indications are received if the system is malfunctioning? [ref. a]

_____
(Signature and Date)

217 GLOBAL POSITIONING SYSTEM (GPS) (CONT'D)

217.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

217.4 SYSTEM INTERFACE

217.4.1 How do the following outside influences affect the operation of this system: [ref.a]
- a. Inclement weather
- b. Fog
- c. Electrical/electronic interference
- d. Overhead obstruction
- e. Satellite
- f. Radar

.2 How does this system interface with the following? [ref. a]
a. Radar

_____
(Signature and Date)

217.5 SAFETY PRECAUTIONS

217.5.1 What safety precautions apply to? [ref. a]
- a. Battery installation
- b. Battery storage
- c. Troubleshooting

_____
(Signature and Date)

300 INTRODUCTION TO WATCHSTATIONS

300.1 INTRODUCTION

The Watchstation section of your PQS is where you get a chance to demonstrate to your Qualifier that you can put the knowledge you have gained in the previous sections to use. It allows you to practice the tasks required for your watchstation and to handle abnormal conditions and emergencies. Before starting your assigned tasks, you must complete the prerequisites that pertain to the performance of that particular task. Satisfactory completion of all prerequisites is required prior to achievement of final watchstation qualification.

300.2 FORMAT

Each watchstation in this section contains:

- A FINAL QUALIFICATION PAGE, which is used to obtain the required signatures for approval and recording of Final Qualification.

- PREREQUISITES, which are items that must be certified completed before you can begin qualification for a particular watchstation. Prerequisites may include schools, watchstation qualifications from other PQS books, and fundamentals, systems, or watchstation qualifications from this book. Prior to signing off each prerequisite line item, the Qualifier must verify completion from existing records. Record the date of actual completion, not the sign-off date.

- WATCHSTATION Performance, which is the practical factors portion of your qualification. The performance is broken down as follows:

  Tasks (routine operating tasks that are performed frequently)
  Infrequent Tasks
  Abnormal Conditions
  Emergencies
  Training Watches
  Examinations

If there are multiple watchstations, a QUALIFICATION PROGRESS SUMMARY will appear at the end of the Standard.

300 INTRODUCTION TO WATCHSTATIONS (CONT'D)

300.3 OPERATING PROCEDURES

The PQS deliberately makes no attempt to specify the procedures to be used to complete a task or control or correct a casualty. The only proper sources of this information are the technical manuals, Engineering Operational Sequencing System (EOSS), Naval Air Training and Operating Procedures Standardization (NATOPS) or other policy-making documents prepared for a specific installation or a piece of equipment. Additionally, the level of accuracy required of a trainee may vary from school to school, ship to ship, and squadron to squadron based upon such factors as mission requirements. Thus, proficiency may be confirmed only through demonstrated performance at a level of competency sufficient to satisfy the Commanding Officer.

300.4 DISCUSSION ITEMS

Though actual performance of evolutions is always preferable to observation or discussion, some items listed in each watchstation may be too hazardous or time consuming to perform or simulate. Therefore, you may be required to discuss such items with your Qualifier.

300.5 NUMBERING

Each Final Qualification is assigned both a watchstation number and a NAVEDTRA Final Qualification number. The NAVEDTRA number is to be used for recording qualifications in service and training records.

300.6 HOW TO COMPLETE

After completing the required prerequisites applicable to a particular task, you may perform the task under the supervision of a qualified watchstander. If you satisfactorily perform the task and can explain each step, your Qualifier will sign you off for that task. After all line items have been completed, your Qualifier will verify Final Qualification by signing and dating the Final Qualification pages.

301 BOW HOOK AND STERN HOOK

NAME_____ RATE/RANK_____

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified BOW HOOK AND STERN HOOK (NAVEDTRA 43152-F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

301 BOW HOOK AND STERN HOOK

Estimated completion time: 8 weeks

301.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING PQS ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

301.1.1 OTHER QUALIFICATIONS:

Falant Color Vision Test (Can be waived for Engineers)

Completed _____
(Qualifier and Date)

Second Class Swimmer Qualified

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

101 Safety Precautions

Completed _____ 4% of Watchstation
(Qualifier and Date)

102 Small Boat/Rigid Hull Inflatable Boat (RHIB)

Completed _____ 4% of Watchstation
(Qualifier and Date)

103 First Aid

Completed _____ 4% of Watchstation
(Qualifier and Date)

106 Boat Etiquette

Completed _____ 4% of Watchstation
(Qualifier and Date)

114 Marine Species Awareness

Completed _____ 4% of Watchstation
(Qualifier and Date)

301 BOW HOOK AND STERN HOOK (CONT'D)

301.1.3 SYSTEMS FROM THIS PQS:

201 Small Boat Structure

Completed _____ 4% of Watchstation
(Qualifier and Date)

211 Drainage

Completed _____ 4% of Watchstation
(Qualifier and Date)

301.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What safety precautions must be observed?
E. Satisfactorily perform this task.

		Questions
301.2.1	Demonstrate proper donning of life preserver	A B D E

_____
(Signature and Date)

.2	Assist coxswain in preparing boat for use	A B C D E

_____
(Signature and Date)

.3	Assist coxswain in preparing boat for hoisting/lowering	A B C D E

_____
(Signature and Date)

.4	Unhook/hook up boat falls/slings, sea painter, and steadying lines in proper sequence while underway (2 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

301 BOW HOOK AND STERN HOOK (CONT'D)

Questions

301.2.5 Prepare boat for going alongside/getting underway to/from:

a. Accommodation ladder (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

b. Boat landing A B D E

_____
(Signature and Date)

c. Pilot/Jacob's ladder A B D E

_____
(Signature and Date)

.6 Assist coxswain in loading/unloading of cargo/personnel A B C D E

_____
(Signature and Date)

.7 Serve as lookout (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.8 Assist in securing boat for sea (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.9 Rig/stow Mast A B C E

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 35% OF WATCHSTATION.

301 BOW HOOK AND STERN HOOK (CONT'D)

301.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications may be used?
E. What safety precautions must be observed?
F. Satisfactorily perform this infrequent task.

		Questions
301.3.1	Make boat fast to boat boom	A B C E F
	_____ (Signature and Date)	
.2	Rig boat for towing	A B C D E F
	_____ (Signature and Date)	
.3	Rig boat for being towed	A B C D E F
	_____ (Signature and Date)	
.4	Rig and use emergency steering	A B C D E F
	_____ (Signature and Date)	
.5	Prepare boat for anchoring	A B C D E F
	_____ (Signature and Date)	
.6	Assist mooring buoy party	A B C D E F
	_____ (Signature and Date)	
.7	Rig/Stow Lightning Rod (11 Meter)	A B C E F
	_____ (Signature and Date)	

301 BOW HOOK AND STERN HOOK (CONT'D)

Questions

301.3.8 Rig/Stow canopy (11 Meter) A B C E F

_____
(Signature and Date)

.9 Make up to a Deadman A B C E F

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 14% OF WATCHSTATION.

301.4 ABNORMAL CONDITIONS– None to be discussed.

301.5 EMERGENCIES

For the emergencies listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. How does this emergency affect other operations/equipment/watchstations?
F. What follow-up action is required?
G. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

301.5.1 Man overboard B C D E F G

_____
(Signature and Date)

.2 Fire A B C D E F G

_____
(Signature and Date)

.3 Flooding A B C D E F G

_____
(Signature and Date)

.4 Capsized boat B C F G

_____
(Signature and Date)

301 BOW HOOK AND STERN HOOK (CONT'D)

Questions

301.5.5 Personnel injury B C D E F G

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 8% OF WATCHSTATION.

301.6 WATCHES

301.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Bow Hook/Stern Hook (3 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 15% OF WATCHSTATION.

301.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

301.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

302 SMALL BOAT ENGINEER

NAME_____ RATE/RANK_____

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified SMALL BOAT ENGINEER (NAVEDTRA 43152-F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

302 SMALL BOAT ENGINEER

Estimated completion time: 16 weeks

302.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING PQS ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

302.1.1 WATCHSTATIONS FROM THIS PQS:

301 Bow Hook and Stern Hook

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

108 Diesel Engine

Completed _____ 1% of Watchstation
(Qualifier and Date)

109 Start up and Shutdown

Completed _____ 1% of Watchstation
(Qualifier and Date)

110 Outboard Engine

Completed _____ 1% of Watchstation
(Qualifier and Date)

111 Outdrive

Completed _____ 1% of Watchstation
(Qualifier and Date)

112 Jet Drive (11 Meter)

Completed _____ 1% of Watchstation
(Qualifier and Date)

302 SMALL BOAT ENGINEER (CONT'D)

302.1.3 SYSTEMS FROM THIS PQS:

202 Main Propulsion Gear Assembly

Completed _____ 1% of Watchstation
(Qualifier and Date)

203 Intake and Exhaust

Completed _____ 1% of Watchstation
(Qualifier and Date)

204 Fuel Oil

Completed _____ 1% of Watchstation
(Qualifier and Date)

205 Lube Oil

Completed _____ 1% of Watchstation
(Qualifier and Date)

206 Jacket Water

Completed _____ 1% of Watchstation
(Qualifier and Date)

207 Raw Water

Completed _____ 1% of Watchstation
(Qualifier and Date)

208 Starting

Completed _____ 1% of Watchstation
(Qualifier and Date)

209 Electrical

Completed _____ 1% of Watchstation
(Qualifier and Date)

210 Instrument Panel and Steering

Completed _____ 1% of Watchstation
(Qualifier and Date)

302 SMALL BOAT ENGINEER (CONT'D)

302.1.3 212 Outboard Engine

Completed _____ 1% of Watchstation
(Qualifier and Date)

213 Outdrive

Completed _____ 1% of Watchstation
(Qualifier and Date)

214 Jet Drive (11 Meter)

Completed _____ 1% of Watchstation
(Qualifier and Date)

215 SmartCraft Diesel View (11 Meter)

Completed _____ 1% of Watchstation
(Qualifier and Date)

302.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

		Questions
302.2.1	Locate and identify each of the following:	
a.	Blower	G
b.	Turbocharger	G
c.	Intercooler/aftercooler	G
d.	Heat exchanger	G
e.	Jacket water pump	G
f.	Raw water pump	G
g.	Fuel injector	G
h.	Fuel pump	G
i.	Fuel water separator	G
j.	Camshaft	G
k.	Crankshaft	G

302 SMALL BOAT ENGINEER (CONT'D)

			Questions
302.2.1	l.	Flywheel	G
	m.	Valve actuating mechanism	G
	n.	Pistons	G
	o.	Cylinder liner	G
	p.	Cylinder head	G
	q.	Intake/exhaust valves	G
	r.	Valve cover	G
	s.	Expansion tank	G
	t.	Alternator	G
	u.	Governor	G
	v.	Zinc anode	G
	w.	VRO Pump (Outboard engine)	G
	x.	Stater (Outboard engine)	G
	y.	Ignition system (Outboard engine)	G

_____
(Signature and Date)

.2 Check Lube Oil/Cooling/Transmission/Hydraulic Oil systems for proper levels — A B E F G

_____
(Signature and Date)

.3 Check Battery and Electrical systems (visual inspection) — A B E F G

_____
(Signature and Date)

.4 Rig shore power — A B E F G

_____
(Signature and Date)

.5 Line up and secure Fuel systems (2 times) — A B E F G

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

		Questions
302.2.6	Line up and secure Raw Water Cooling systems (2 times)	A B D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Fill and sound fuel oil service tanks	A B E F G
	_____ (Signature and Date)	
.8	Check Cold Weather Starting system	A B E F G
	_____ (Signature and Date)	
.9	Line up, start, operate, and secure engines (3 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.10	Check Bilge Pumping system	A B C D E F G
	_____ (Signature and Date)	
.11	Inspect and operate steering and engine control equipment	A B C D E F G
	_____ (Signature and Date)	

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.2.12 Check small boat engineering plant for structural discrepancies (2 times) A B E F G

_____
(Signature and Date)

_____
(Signature and Date)

a. Engine mounts A B E F G

_____
(Signature and Date)

b. Shaft coupling A B E F G

_____
(Signature and Date)

c. Transmission output coupling A B E F G

_____
(Signature and Date)

d. Stuffing box A B E F G

_____
(Signature and Date)

e. Shafts, cutlass bearings, and propellers A B E F G

_____
(Signature and Date)

f. Buckets and trim tabs A B E F G

_____
(Signature and Date)

.13 Fill out and properly submit Daily Boat Report (2 times) A B E F G

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.2.14 Maintain engine operating logs — A B E F G

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 16% OF WATCHSTATION.

302.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. Satisfactorily perform or simulate this infrequent task.

Questions

302.3.1 Steer by emergency tiller (2 times) — A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.2 Manually control engine (2 times) — A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.3 Manually control transmission (2 times) — A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.3.4 Manually control buckets (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 6% OF WATCHSTATION

302.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

302.4.1 Engine fails to start (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.2 High temperatures:

a. Freshwater (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.2 b. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

c. Transmission drive oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.3 Low temperatures:

a. Freshwater (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

b. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.4 High pressure:

a. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.4 b. Transmission drive oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

c. Fuel oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.5 Low pressure:

a. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

b. Transmission drive oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

c. Fuel oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.5 d. Hydraulic oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.6 Fluctuating pressure:

a. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

b. Transmission drive oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

c. Fuel oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.7 Excessive exhaust temperature (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.8 Clogged strainer/filters:

a. Fuel oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

b. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

c. Cooling water (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

d. Air (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.9 Contaminated system:

a. Lube oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.9 c. Jacket water (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

d. Transmission oil (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

e. Drive oil (2 times) (Outdrive) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.10 High/low electrical output (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.11 Engine drive train vibration (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.12 Excessive shaft vibration (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.13 Abnormal engine sounds (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.14 Excessive exhaust smoke:

a. White (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

b. Blue (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

c. Black/gray (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.15 Loose/worn drive belts A B C D E F G H

_____
(Signature and Date)

.16 Excessive oil/water in bilges (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.4.17 Loss of bilge pump — A B C D E F G H

_____
(Signature and Date)

.18 Loss of blower (2 times) — A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.19 Seized engine (2 times) — A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.20 Low drive oil level — A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 34% OF WATCHSTATION.

302.5 EMERGENCIES

For the emergencies listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. Satisfactorily perform or simulate the immediate action for this emergency.

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.5.1 Loss of:

a. Propellers — A B C D E F G

_____
(Signature and Date)

b. Shafts — A B C D E F G

_____
(Signature and Date)

c. Steering (2 times) — A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

d. Transmission drive oil pressure (2 times) — A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

e. Electrical/Navigation system (2 times) — A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

f. Engine lube oil pressure (2 times) — A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

302 SMALL BOAT ENGINEER (CONT'D)

Questions

302.5.1 g. Turbocharger A B C D E F G

_____
(Signature and Date)

h. Fresh/raw water A B C D E F G

_____
(Signature and Date)

.2 Broken fuel line A B C D E F G

_____
(Signature and Date)

.3 Fire (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

.4 Flooding (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

.5 Crankcase explosion A B C D E F G

_____
(Signature and Date)

Completed .5 area comprises 14% of watchstation.

302 SMALL BOAT ENGINEER (CONT'D)

302.6.4 WATCHES

302.6.4.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Small Boat Engineer (3 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 12% OF WATCHSTATION.

302.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

302.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN

NAME_____ RATE/RANK_____

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (NAVEDTRA 43152-F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN

Estimated completion time: 16 weeks

303.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING PQS ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

303.1.1 SCHOOLS:

Rigid Hull Inflatable Boat (RHIB) Coxswain (K-062-0625) (RECOMMENDED)

Completed _____
(Qualifier and Date)

Basic Boat Coxswain (K-062-0634) (RECOMMENDED)

Completed _____
(Qualifier and Date)

.2 OTHER QUALIFICATIONS:

Falant Color Vision Test

Completed _____
(Qualifier and Date)

.3 WATCHSTATIONS FROM THIS PQS:

301 Bow Hook and Stern Hook

Completed _____
(Qualifier and Date)

.4 FUNDAMENTALS FROM THIS PQS:

104 Rules of the Road

Completed _____ 3% of Watchstation
(Qualifier and Date)

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

303.1.4 105 Navigation

Completed _____ 3% of Watchstation
(Qualifier and Date)

107 Communications

Completed _____ 3% of Watchstation
(Qualifier and Date)

109 Start-Up and Shutdown

Completed _____ 3% of Watchstation
(Qualifier and Date)

.5 SYSTEMS FROM THIS PQS:

208 Starting

Completed _____ 3% of Watchstation
(Qualifier and Date)

210 Instrument Panel and Steering

Completed _____ 3% of Watchstation
(Qualifier and Date)

216 Radar

Completed _____ 3% of Watchstation
(Qualifier and Date)

217 Global Positioning (GPS)

Completed _____ 3% of Watchstation
(Qualifier and Date)

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

303.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

		Questions
303.2.1	Supervise completion and submission of Daily Boat Report	A B C F G
	_____ (Signature and Date)	
.2	Prepare small boat for hoisting and lowering	A B C D E F G
	_____ (Signature and Date)	
.3	Supervise unhooking/hooking up boat falls/slings/sea painter/ steadying lines underway	A B C D E G
	_____ (Signature and Date)	
.4	Convert true course to compass course	A B G
	_____ (Signature and Date)	
.5	Maintain and log compass course to and from destination using navigational aids	A B C G
	_____ (Signature and Date)	
.6	Demonstrate radio transmission proficiency	A B C D E F G
	_____ (Signature and Date)	

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

Questions

303.2.7 Make port/starboard landings to:

a. Accommodation ladders (2 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

b. Boat landing (2 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

c. Pilot/Jacob's ladder (2 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

d. Make up Sea painter while underway (2 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

e. Make up to a Deadman (2 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

Questions

303.2.8 Transit a four-way point route using GPS (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

.9 Supervise loading and unloading of cargo/personnel A B C D E F G

_____
(Signature and Date)

.10 Transport liberty party A B C D E F G

_____
(Signature and Date)

.11 Render honors A B D G

_____
(Signature and Date)

.12 Light-off and secure boat engine A B C D E F G

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 24% OF WATCHSTATION.

303.3 INFREQUENT TASKS
For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. Satisfactorily perform or simulate this infrequent task.

303.3.1 Use emergency steering A B C E F

_____
(Signature and Date)

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

Questions

303.3.2 Navigate in low/reduced visibility A B C D E F

_____
(Signature and Date)

.3 Deploy/recover swimmer A B C D E F

_____
(Signature and Date)

.4 Conduct tow/be towed operation A B C D E F

_____
(Signature and Date)

.5 Serve as coxswain for mooring to a buoy A B C D E F

_____
(Signature and Date)

.6 Use/identify distress signals A B D E F

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 13% OF WATCHSTATION.

303.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

303.4.1 Low oil pressure A B C D E F

_____
(Signature and Date)

.

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

303.4.2 High water temperature A B C D E F

_____
(Signature and Date)

.3 Loss of communication A B C D E F

_____
(Signature and Date)

.4 Low drive oil level A B C D E F

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 7% OF WATCHSTATION

303.5 EMERGENCIES

For the emergencies listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

303.5.1 Loss of steering A B C D E F

_____
(Signature and Date)

.2 Loss of engine control A B C D E F

_____
(Signature and Date)

.3 Man overboard A B C D E F

_____
(Signature and Date)

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

Questions

303.5.4 Fire — A B C D E F

_____
(Signature and Date)

.5 Flooding — A B C D E F

_____
(Signature and Date)

.6 Collision — A B C D E F

_____
(Signature and Date)

.7 Running aground — A B C D E F

_____
(Signature and Date)

.8 Loss of navigational lights — A B C D E F

_____
(Signature and Date)

.9 Personnel injuries — B D E F

_____
(Signature and Date)

.10 Fuel oil leak — A B C D E F

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 14% OF WATCHSTATION.

.

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN (CONT'D)

303.6 WATCHES

303.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Coxswain (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 18% OF WATCHSTATION

303.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

303.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN

NAME_____ RATE/RANK_____

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A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (NAVEDTRA 43152-F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN

Estimated completion time: 16 weeks

304.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING PQS ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

304.1.1 SCHOOLS:

Rigid Hull Inflatable Boat (RHIB) Coxswain (K-062-0625)
(RECOMMENDED)

Completed _____
(Qualifier and Date)

.2 OTHER QUALIFICATIONS:

None.

.3 WATCHSTATIONS FROM THIS PQS:

301 Bow Hook/Stern Hook

Completed_____
(Qualifier and Date)

303 Small Boat Coxswain/Rigid Hull Inflatable Boat (7 METER RHIB) Coxswain

Completed _____
(Qualifier and Date)

.4 FUNDAMENTALS FROM THIS PQS:

112 Jet Drive

Completed _____ 3% of Watchstation
(Qualifier and Date)

113 Trim tab

Completed _____ 3% of Watchstation
(Qualifier and Date)

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

304.1.4 114 Marine Species Awareness

Completed _____ 3% of Watchstation
(Qualifier and Date)

.5 SYSTEMS FROM THIS PQS:

214 Jet Drive

Completed _____ 3% of Watchstation
(Qualifier and Date)

216 Radar

Completed _____ 3% of Watchstation
(Qualifier and Date)

217 Global Positioning (GPS)

Completed _____ 3% of Watchstation
(Qualifier and Date)

304.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

Questions

304.2.1 Prepare small boat for hoisting and lowering A B C D E F G

_____
(Signature and Date)

.2 Supervise unhooking/hooking up boat falls/slings/sea painter/ steadying lines A B C D E G

_____
(Signature and Date)

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

Questions

304.2.3 Make port/starboard landings to:

a. Accommodation ladders (5 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. Boat landing (5 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

Questions

304.2.3 c. Pilot/Jacob's ladder (5 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

d. Make up Sea painter while underway (5 times) A B C D E G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.4 Supervise loading and unloading of cargo/personnel A B C D E F G

_____
(Signature and Date)

.5 Light-off and secure boat engine A B C D E F G

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 25% OF WATCHSTATION.

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

304.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. Satisfactorily perform this infrequent task.

		Questions
304.3.1	Use emergency steering	A B C E F
	_____ (Signature and Date)	
.2	Navigate in low/reduced visibility	A B C D E F
	_____ (Signature and Date)	
.3	Deploy/recover swimmer	A B C D E F
	_____ (Signature and Date)	
.4	Conduct tow/be towed operation	A B C D E F
	_____ (Signature and Date)	
.5	Serve as coxswain for mooring to a buoy	A B C D E F
	_____ (Signature and Date)	
.6	Make port and starboard landing on single engine	A B C D E F
	_____ (Signature and Date)	

Completed .3 area comprises 15% of watchstation.

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

304.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

304.4.1 Battery failure A B C D E F

_____
(Signature and Date)

.2 Single engine operation A B C D E F

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 8% OF WATCHSTATION.

304.5 EMERGENCIES

For the emergencies listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

304.5.1 Loss of steering A B C D E F

_____
(Signature and Date)

.2 Obstruction of jet intake A B C D E F

_____
(Signature and Date)

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

Questions

304.5.3 Loss of engine control A B C D E F

_____
(Signature and Date)

.4 Fire A B C D E F

_____
(Signature and Date)

.5 Flooding A B C D E F

_____
(Signature and Date)

.6 Fuel oil leak A B C D E F

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 16% OF WATCHSTATION.

304.6 WATCHES

304.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION: (5 TIMES)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 18% OF WATCHSTATION.

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN (CONT'D)

304.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

304.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

305 SMALL BOAT OFFICER

NAME_____ RATE/RANK_____

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified SMALL BOAT OFFICER (NAVEDTRA 43152-F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

305 SMALL BOAT OFFICER

Estimated completion time: 8 weeks

305.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING PQS ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

305.1.1 OTHER QUALIFICATIONS:

Second Class Swimmer Qualified

Completed _____
(Qualifier and Date)

Falant Color Vision Test

Completed _____
(Qualifier and Date)

Small Arms Qualified (NAVEDTRA 43466-B) (301, 303, 304, 313) (Recommended)

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

101 Safety Precautions

Completed _____ 3% of Watchstation
(Qualifier and Date)

102 Small Boat/Rigid Hull Inflatable Boat (RHIB)

Completed _____ 3% of Watchstation
(Qualifier and Date)

103 First Aid

Completed _____ 3% of Watchstation
(Qualifier and Date)

104 Rules of the Road

Completed _____ 3% of Watchstation
(Qualifier and Date)

305 SMALL BOAT OFFICER (CONT'D)

305.1.2 105 Navigation

Completed _____ 3% of Watchstation
(Qualifier and Date)

106 Boat Etiquette

Completed _____ 3% of Watchstation
(Qualifier and Date)

107 Communications

Completed _____ 3% of Watchstation
(Qualifier and Date)

114 Marine Species Awareness

Completed _____ 3% of Watchstation
(Qualifier and Date)

.3 SYSTEMS FROM THIS PQS:

201 Small Boat Structure

Completed _____ 3% of Watchstation
(Qualifier and Date)

210 Instrument Panel and Steering

Completed _____ 3% of Watchstation
(Qualifier and Date)

216 Radar

Completed _____ 3% of Watchstation
(Qualifier and Date)

217 Global Positioning (GPS)

Completed _____ 3% of Watchstation
(Qualifier and Date)

305 SMALL BOAT OFFICER (CONT'D)

305.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What safety precautions must be observed?
C. Satisfactorily perform this task.

		Questions
305.2.1	Inspect and brief boat crew	B C
	_____ (Signature and Date)	
.2	Review navigation chart for prescribed route	A B C
	_____ (Signature and Date)	
.3	Ensure proper boat etiquette	C
	a. Embarking/debarking	A B C
	b. Rendering/receiving honors	A B C
	c. Displaying of personal pennants/national ensign	A C
	_____ (Signature and Date)	
.4	Ensure proper adherence to rules of the road	C
	_____ (Signature and Date)	
.5	Identify senior officer onboard	A C
	_____ (Signature and Date)	
.6	Ensure boat loading limits are not exceeded	A B C
	_____ (Signature and Date)	
.7	Operate GPS	A B C
	_____ (Signature and Date)	

305 SMALL BOAT OFFICER (CONT'D)

		Questions
305.2.8	Operate radar	A B C

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 14% OF WATCHSTATION.

305.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What control/coordination is required?
C. What means of communications are used?
D. What safety precautions must be observed?
E. Satisfactorily perform or simulate this infrequent task.

		Questions
305.3.1	Ensure safe deploying/recovering of swimmer	A B C D E

_____
(Signature and Date)

.2	Navigate in low visibility	A B C D E

_____
(Signature and Date)

.3	Assist in towing/being towed	A B C D E

_____
(Signature and Date)

.4	Use/identify distress signals	A B C D E

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 8% OF WATCHSTATION.

305 SMALL BOAT OFFICER (CONT'D)

305.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

		Questions
305.4.1	Loss of voice communication/alternate means of communication	A B C D E F G H
	_____ (Signature and Date)	
.2	Loss of navigation systems	A B C D E F G H
	_____ (Signature and Date)	
.3	Operate in heavy weather	A B C D E F G H
	_____ (Signature and Date)	

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

305.5 EMERGENCIES

For the emergencies listed below:

A. What indications or alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. Satisfactorily perform or simulate the immediate action for this emergency.

305 SMALL BOAT OFFICER (CONT'D)

		Questions
305.5.1	Man overboard	A B C D E F G
	_____ (Signature and Date)	
.2	Fire	A B C D E F G
	_____ (Signature and Date)	
.3	Flooding	A B C D E F G
	_____ (Signature and Date)	
.4	Collision	A B C D E F G
	_____ (Signature and Date)	
.5	Loss of navigational lights	A B C D E F G
	_____ (Signature and Date)	
.6	Personnel injuries	B D E F G
	_____ (Signature and Date)	
.7	Loss of engine control	A B C D E F G
	_____ (Signature and Date)	
.8	Loss of steering	A B C D E F G
	_____ (Signature and Date)	
.9	Running aground	A B C D E F G
	_____ (Signature and Date)	

305 SMALL BOAT OFFICER (CONT'D)

Questions

305.5.10 Capsized boat B D E F G

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 16% OF WATCHSTATION.

305.6 WATCHES

305.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Small Boat Officer (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 16% OF WATCHSTATION.

305.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

305.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

NAVEDTRA 43152-F

QUALIFICATION PROGRESS SUMMARY FOR SMALL BOAT OPERATIONS

NAME_____ RATE/RANK_____

This qualification progress summary is used to track the progress of a trainee in the watchstations for this PQS and ensure awareness of remaining tasks. It should be kept by the individual or in the individual's training jacket and updated with an appropriate signature (Training Petty Officer, Division Officer, Senior Watch Officer, etc.) as watchstations are completed.

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301 BOW HOOK AND STERN HOOK

Completed _____ Date_____
(Signature)

---

302 SMALL BOAT ENGINEER

Completed _____ Date_____
(Signature)

---

303 SMALL BOAT COXSWAIN/RIGID HULL INFLATABLE BOAT (7 METER RHIB) COXSWAIN

Completed _____ Date_____
(Signature)

---

304 RIGID HULL INFLATABLE BOAT (11 METER RHIB) COXSWAIN

Completed _____ Date_____
(Signature)

---

305 SMALL BOAT OFFICER

Completed _____ Date_____
(Signature)

LIST OF REFERENCES USED IN THIS PQS

Boat Bill
Boat Information Book (BIB)
COMDTINST M16672.2D, Navigation Rules-International Inland
Cummins MercCruiser Diesel SmartCraft Manufacturer’s Operation Manual
Cummins MerCruiser Diesel System Speedometer and Tachometer (11 Meter RHIB) Manufacturer’s Manual
Electromechanical Trim Tab System Manufacturer’s Manual
Engine Specific Technical Manual
LECTROTAB Autoset II System Manufacturer’s Manual
Manufacturer’s Technical Manual
Manufacturer's Operating Manual, Engine Specific
Manufacturer's Operating Manual, Outdrive Specific
NAVEDTRA 12968-B Lookout Training Handbook, Chapter 13
NAVEDTRA 14057 Damage Controlman
NAVEDTRA 14067, Seaman
NAVEDTRA 14244, Signalman
NAVEDTRA 14325, Basic Military Requirements (BMR)
NAVEDTRA 14331, Engineman 3
NAVEDTRA 14338, Quartermaster
NAVEDTRA 14343, Boatswain's Mate
NSTM S9086-CL-STM-010/CH-077, Personnel Protection Equipment
NSTM S9086-TX-STM-010/CH-583, Boats and Small Craft
NWP 3-50.1 (Rev. A), Naval Search and Rescue (SAR) Manual
OP-4, Ammunition and Explosive Safety Afloat
OPNAVINST 3500.39, Operational Risk Management
OPNAVINST 5100.19D, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
Radar Specific Operator's Manual
RHIB Operations Reference Manual
Ship’s Information Book
Ship’s Weight Test Log
The American Practical Navigator, (BOWDITCH), Pub. No. 9
United States of America Nautical Chart Symbols Abbreviations and Terms, Chart No.1

Personal Qualification Standard
Feedback Form

From_____ Date_____

Via_____ Date_____
Department Head

Activity _____

Mailing Address_____

Email Address _____DSN_____

PQS Title_____NAVEDTRA_____

Section Affected_____

Page Number(s)_____

For faster response, you may email your feedback to CSCS at: scott.d.russell1@navy.mil or thomas.malley@navy.mil. Please include the above information so that we may better serve you.

Remarks/Recommendations (Use additional sheets if necessary):

(FOLD HERE)

DEPARTMENT OF THE NAVY

OFFICIAL BUSINESS

COMMANDING OFFICER
Center for Surface Combat Systems
5395 First St
Dahlgren, VA 22448-5200

(FOLD HERE)